

No. 786,917.

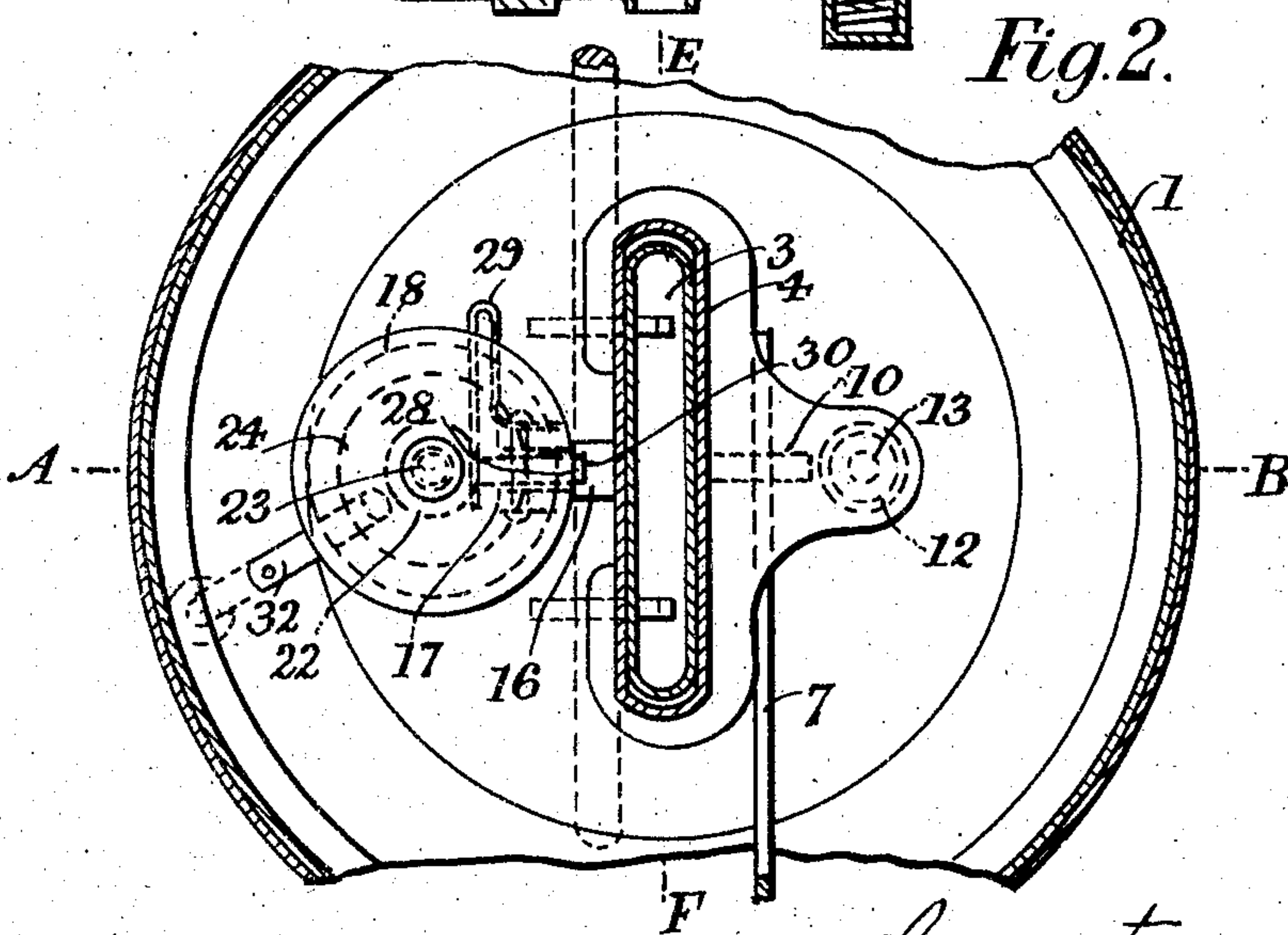
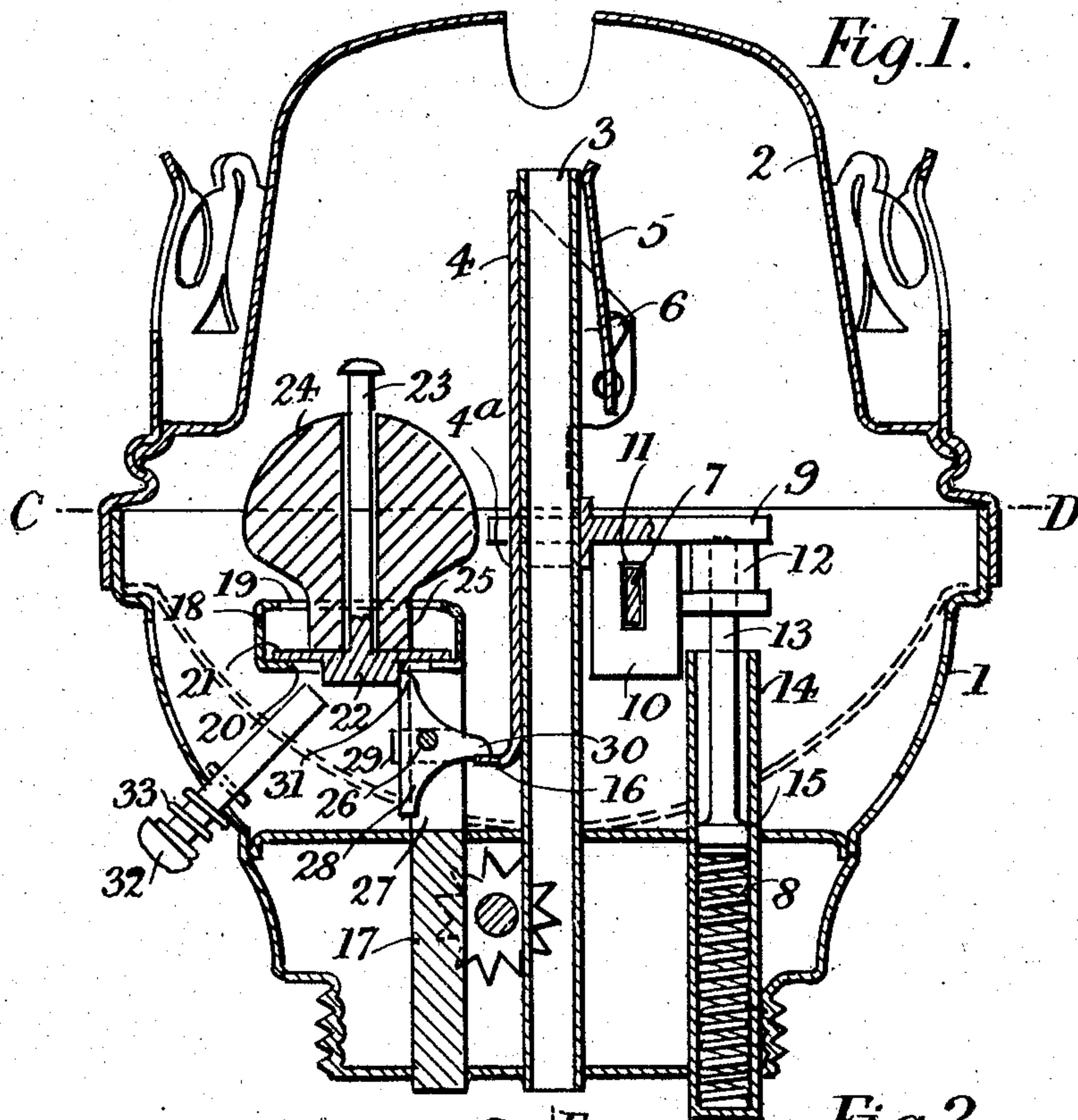
W. H. O'KEEFE.

PATENTED APR. 11, 1905.

AUTOMATIC SAFETY EXTINGUISHER ADAPTED TO SINGLE AND DUPLEX  
BURNERS FOR OIL LAMPS.

APPLICATION FILED MAR. 31, 1904.

3 SHEETS—SHEET 1.



Witnesses.

O. Knight, Jr.  
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Inventor

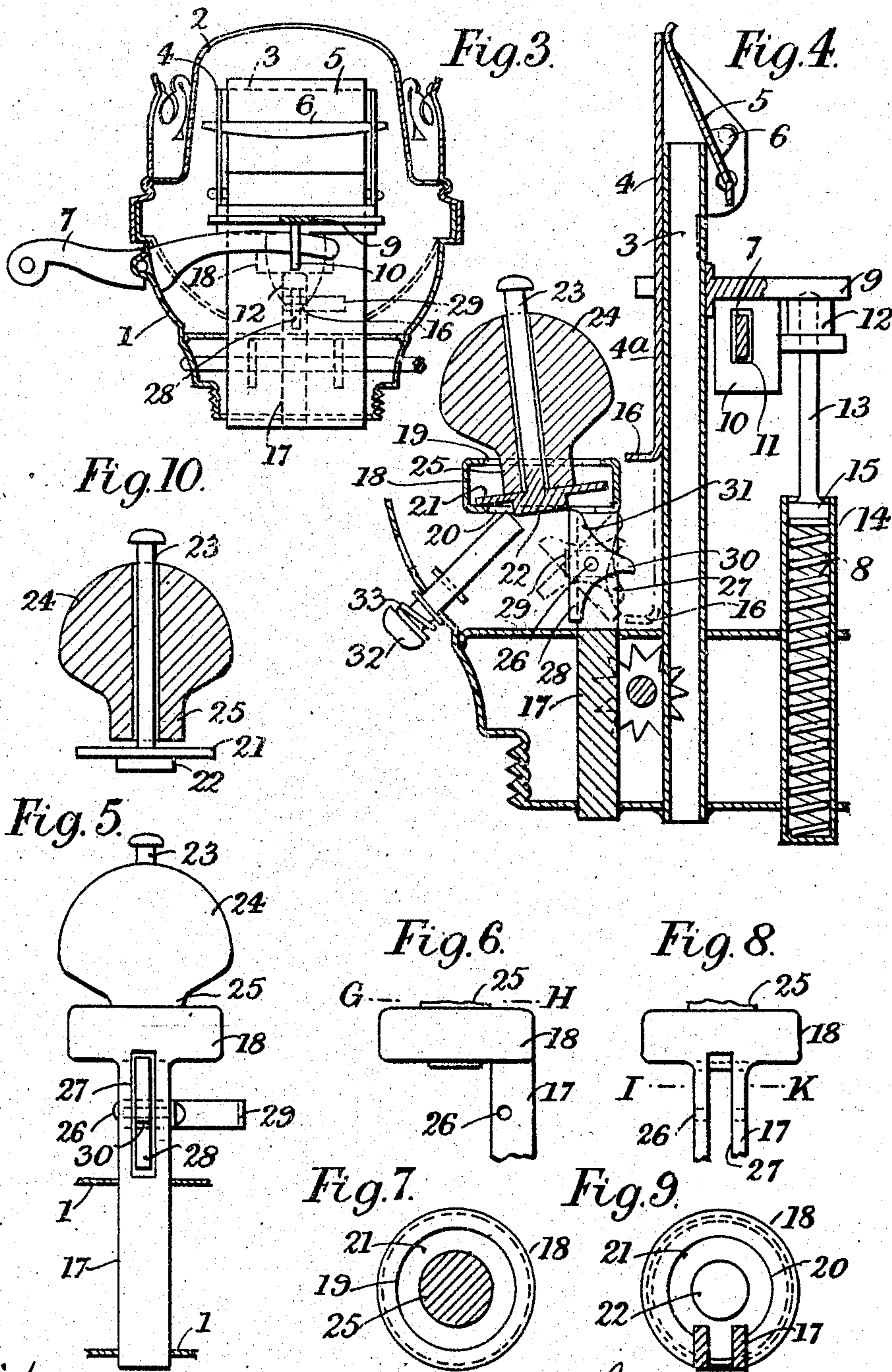
W. H. O'Keefe.  
By Knight Bros Attys

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3 SHEETS—SHEET 2.



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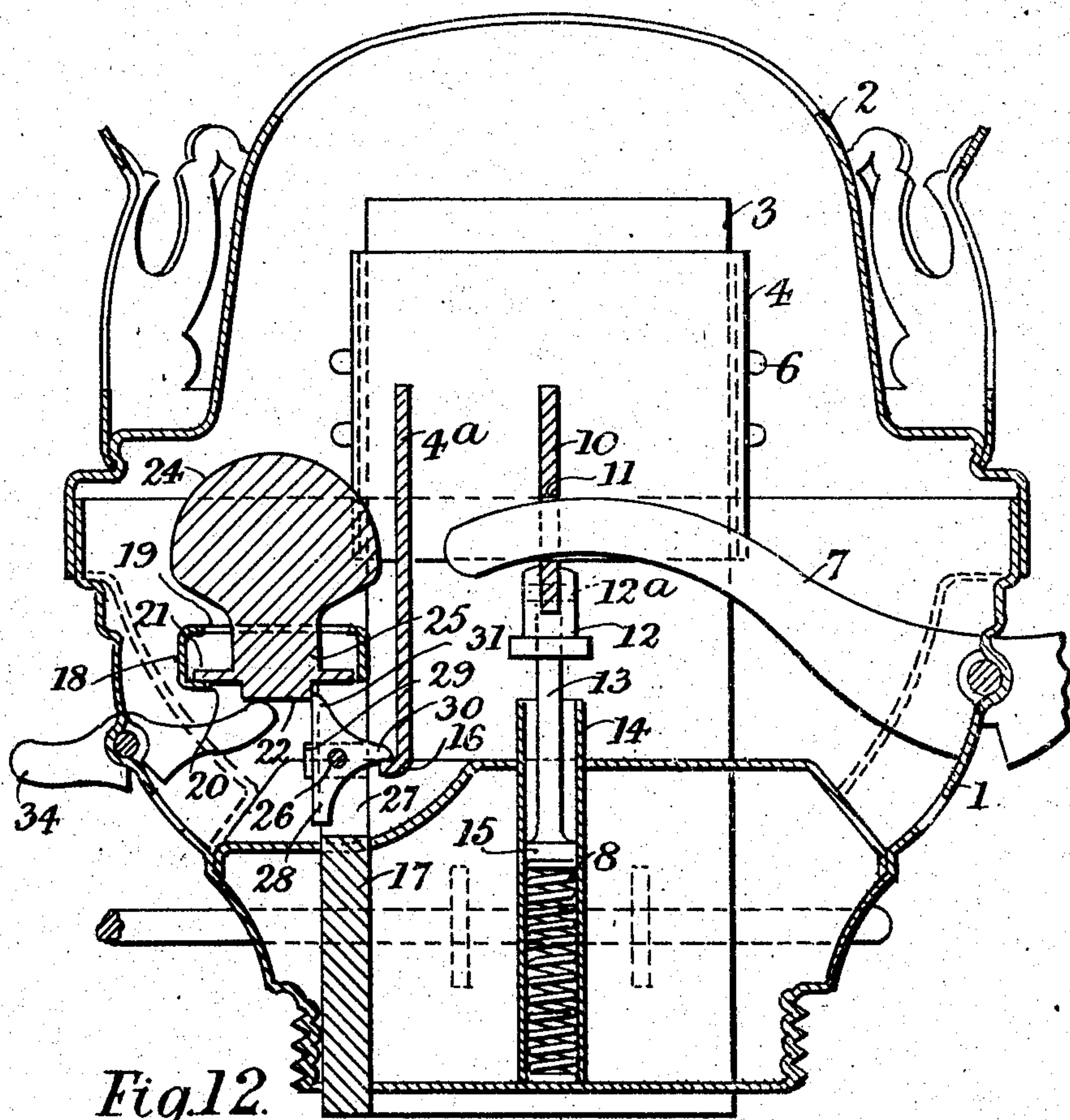
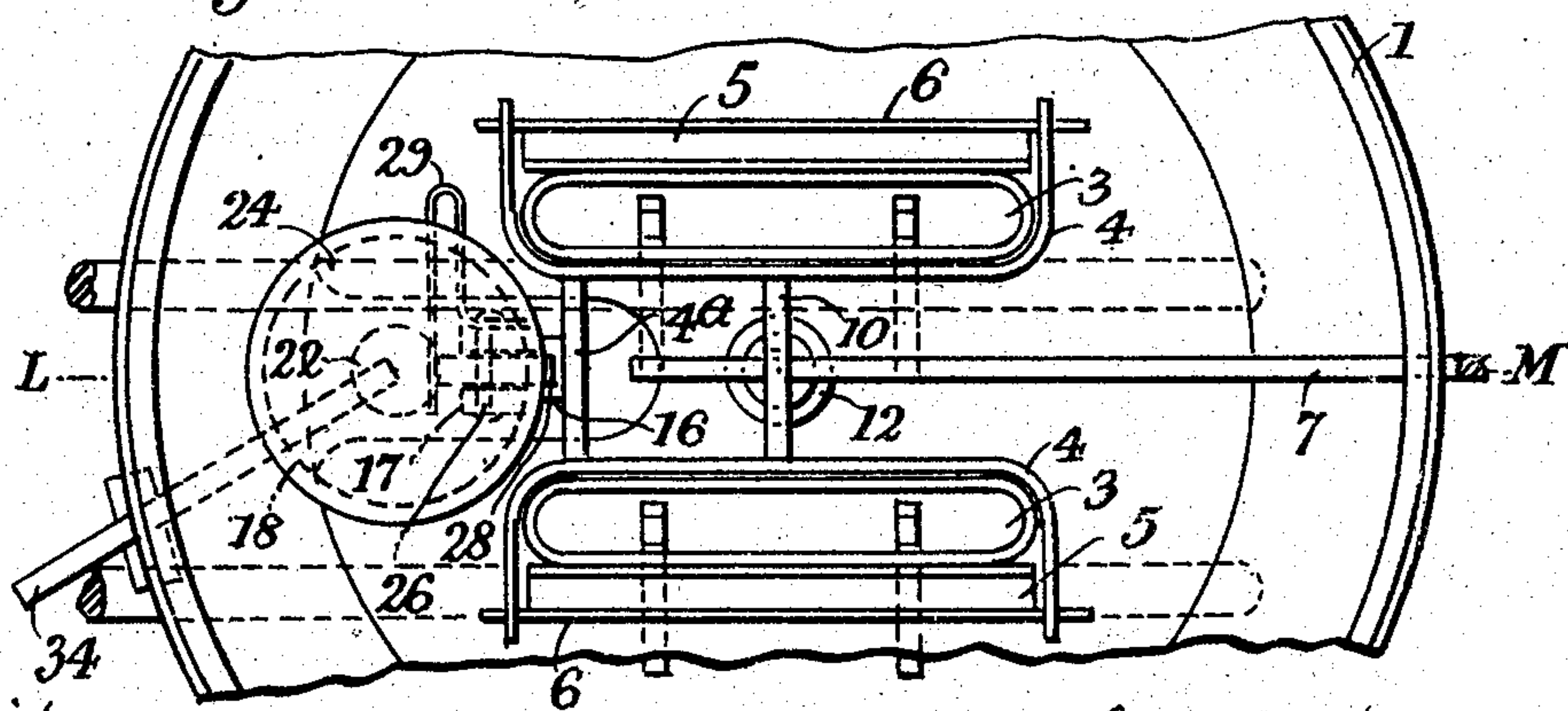
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3 SHEETS—SHEET 3.

*Fig. 11.**Fig. 12.*

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# UNITED STATES PATENT OFFICE.

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AUTOMATIC SAFETY-EXTINGUISHER ADAPTED TO SINGLE AND DUPLEX BURNERS FOR OIL-LAMPS.

SPECIFICATION forming part of Letters Patent No. 786,917, dated April 11, 1905.

Application filed March 31, 1904. Serial No. 201,012.

*To all whom it may concern:*

Be it known that I, WILLIAM HENRY O'KEEFE, watchmaker, a subject of the King of Great Britain, residing at 39 Church street, Athlone, in the county of Westmeath, Ireland, have invented certain new and useful Improvements in Automatic Safety-Extinguishers as Adapted to Single and Duplex Burners for Oil-Lamps, of which the following is a specification, reference being had to the drawings hereunto annexed and to the reference-numerals marked thereon.

The invention relates to an automatic safety-extinguisher for oil-lamps.

Many attempts have been made to produce an extinguisher which upon the lamp assuming a dangerous angle or receiving a shock due to the overturning thereof or otherwise would act in a reliable manner; but most of said devices have failed to come into general use for various reasons, some of which are that they have been too expensive or not sufficiently sensitive or that they required some manipulation on the part of the user to put them in working order, and which latter is a fatal objection to any such device.

Now the object of the present invention is to obtain a simple, inexpensive, and sensitive device which will be automatically cocked or rendered operative by the simple act of lowering the snuffer or extinguisher without throwing any extra work upon the user, and the invention comprises various details of construction, as hereinafter described and illustrated.

In the accompanying drawings, Figure 1 is a vertical section, taken on the line A B of Fig. 2, of a single-wick burner having the present invention applied thereto and showing the extinguishing device in position ready for action. Fig. 2 is a horizontal section taken on the line C D of Fig. 1. Fig. 3 is a vertical section taken on the line E F of Fig. 2. Fig. 4 represents part of Fig. 1, but showing the extinguishing device in its discharged position. Fig. 5 is a sectional elevation of the weight and some connected parts. Fig. 6 represents an elevation of part of Fig. 5, but taken at right angles thereto. Fig. 7 is a sectional plan thereof, the section being taken

on the line G H of Fig. 6. Fig. 8 is a similar view to Fig. 6, but taken at right angles thereto. Fig. 9 is a sectional under side view thereof, the section being taken on the line I K of Fig. 5. Fig. 10 is a sectional elevation, the section being taken on the line A B of Fig. 2 of the weight and some immediately-connected parts. Fig. 11 is a vertical section, taken on the line L M of Fig. 12, of a duplex burner having the present invention applied thereto; and Fig. 12 is a plan thereof with the cone removed.

In the several figures like parts are indicated by similar reference-numerals, and Fig. 3 is drawn to a reduced scale with respect to the other figures of the drawings.

Referring to Figs. 1 to 10, 1 represents the body of the burner, 2 represents the cone, 3 represents the wick-tube, and 4 represents a sleeve or fitting mounted with capability of sliding upon the wick-tube 3 and provided with a pivotally-mounted flap 5, actuated by a spring 6 in the well-known manner to close the flap 5, as shown at Fig. 4, when the sleeve 4 is raised in order to extinguish the flame. The sleeve 4 is usually raised by hand by means of a lever; but according to the present invention it is depressed by means of a lever 7 and raised by means of a spring 8. For this purpose the sleeve 4 is provided with an offset or bracket 9, having a lug 10, formed with a slot 11, in which works the lever 7, the office of which is to depress the sleeve 4, and the bracket or offset 9 is at or near its end provided with an axially-recessed boss 12, in which is securely fitted the upper end of a rod 13, which works through the open top of a cylindrical case 14, inclosing the spring 8, and at its lower end is formed with a piston 15, which works in the case 14 and is acted upon by the spring 8, the office of which is to raise the sleeve 4. The sleeve 4 is retained in its depressed position with the flap 5 thrown back, as shown at Figs. 1, 2, and 3, and automatically released upon the lamp being held at a dangerous angle or receiving a shock due to the overturning thereof or otherwise by the following means: Upon an extension 4<sup>a</sup> of the sleeve 4 is a projection or tooth 16, and fixed upon the upper end of a post 17, fixed



with the body 1 of the burner, is a drum, cage, or box 18, having openings 19 and 20 in the top and bottom thereof, respectively, and loosely fitting the drum 18 is a disk 21, which  
 5 seats upon the bottom of the drum and has a cylindrical projection 22 upon its under side, which projects through the opening 20, and a headed pin 23 upon its upper side, upon which  
 10 weight 24 at its lower part contracted or formed with a neck 25, which extends through the opening 19 in the top of the drum cage or box 18 and admits of the required oscillations of the weight 24, while the internal area  
 15 of the drum admits of the corresponding canting or oscillation of the disk 21. The drum 18 therefore holds the weight 24 captive, while permitting a certain degree of movement thereof. Pivotaly mounted at 26 in a  
 20 slot 27 in the upper end of the post 17 is a rocking lever or detent 28, which is normally held in the position indicated in Fig. 1 by a light spring 29, carried by the post 17 and of inferior strength to the spring 8, and the lever or detent 28 is formed with a nose or tooth  
 25 30, adapted to engage the projection or tooth 16 of the sleeve 4, and with a similar nose or tooth 31, adapted to engage the cylindrical projection 22 of the disk 21 when the weight  
 30 24 is in its normal position, as shown more particularly at Fig. 1, by which means the sleeve 4 will be held in its depressed position against the force of the spring 8 until the weight 24 is displaced, carrying with it the  
 35 disk 21, and thereby withdrawing the cylindrical projection 22 from the nose or tooth 31 of the oscillating lever 28.

The action of the device may be described as follows: Assuming the parts, with the ex-  
 40 ception of the weight 24, to be in the position shown at Fig. 4 and the weight to be in the position shown at Fig. 1, when it is desired to light the lamp the outer end of the lever 7 is raised, thereby depressing the sleeve 4  
 45 against the force of the spring 8 and throwing back the flap 5 of the extinguisher in the well-known manner by the action thereon of the wick-tube 3. At the same time the projection or tooth 16 of the sleeve 4 comes against  
 50 the nose 30 of the rocking lever or detent 28, turning the same on its axis against the action of the spring 29 and forcing its way past the same, and upon the lever 7 being released the nose 30 of the rocking lever 28 engages the  
 55 projection 16 of the sleeve 4, and the projection 22 of the disk 21 of the weight engages the nose 31 of said lever, and the sleeve 4 will thus be held depressed against the force of the spring 8. Upon the weight 24 being displaced  
 60 in any direction, either by the push-piece 32, hereinafter described and as shown at Fig. 4, or by the dangerous inclination of the lamp or by a shock due to the overturning of the lamp or otherwise, the projection 22 of the

disk 21 will be withdrawn from the nose 31 65 of the rocking lever or detent 28, and the projection 16 of the sleeve 4 will under the influence of the spring 8 force its way past the nose 30 of the rocking lever 28, which will turn upon its axis, and the flap 5 under the  
 70 influence of its spring 6 will close over the top of the wick-tube 3, as shown at Fig. 4, thereby extinguishing the flame of the lamp. Upon the lamp being restored to a vertical position  
 75 the weight 24 will return to its normal position, as shown at Fig. 1, with the projection 22 of the disk 21 in position to engage the nose 31 of the rocking lever 28, and the device may be cocked or reset by means of the  
 80 lever 7 in the manner hereinbefore described.

In order to cause the device to act and extinguish the lamp under ordinary circumstances, a push-piece 32 is provided, which is mounted in a perforation in the body of the burner and retained in its normal position by  
 85 a spring 33 and is arranged at such an angle that when pressed inward its inner end is adapted to impinge upon the projection 22 of the disk 21 and displace the weight 24, as shown at Fig. 4, or any other suitable device  
 90 may be employed for this purpose.

In the example given at Figs. 11 and 12 the invention is shown applied to a duplex burner provided with two sleeves 4 and spring-actuated flaps 5. In this case the lug 10 is for  
 95 convenience arranged in the form of a web connecting both sleeves 4, and the lever 7 works between the two sleeves, while the spring-box 14 and rod 13 are similarly arranged in a central position, and the boss 12  
 100 is fixed with the rod 13 and pivotaly connected at 12<sup>a</sup> with the lower edge of the web 10, while the extension 4<sup>a</sup> of the sleeve 4, carrying the tooth or projection 16, is also arranged between said sleeves and fixed with  
 105 both. Instead of the weight 24 being loosely mounted upon a pin 23, fixed with the disk 21, said weight is directly fixed with the disk, while as a further modification the spring push-piece 32 is replaced by a small lever 34,  
 110 adapted to displace the weight 24 at the times desired. In other respects the device is substantially identical with that hereinbefore shown and described with respect to Figs. 1 to 10, and its action is the same.  
 115

It will be obvious that the details of construction of the device may be otherwise considerably varied without departing from the spirit of the invention.

By the means hereinbefore described a simple, inexpensive, and reliable safety-extinguishing device is obtained which requires no additional manipulation to reset it after use, but is cocked or made ready for use by the  
 120 usual act of lowering the extinguisher proper  
 125 preparatory to lighting the lamp.

Having now particularly described and ascertained the nature of the said invention and



in what manner the same is to be performed, I declare that what I claim is—

1. In an automatic safety-extinguisher, the combination with a burner, of a captive weight surrounded by the burner and loosely mounted upon a seat within the burner with capability of oscillating within certain limits, a spring-actuated extinguishing device, and a detent normally engaging said weight and said extinguishing device, substantially as herein shown and described.

2. In an automatic safety-extinguisher, the combination with a burner, of a captive weight surrounded by the burner and loosely mounted upon a seat with capability of oscillating, a spring-actuated extinguishing device, and a pivotally-mounted detent having a pair of noses normally engaging the weight and the extinguishing device, substantially as herein shown and described.

3. In an automatic safety-extinguisher, the combination with a burner, of a captive weight surrounded by the burner and loosely mounted upon a seat within the burner with capability of oscillating within certain limits, a spring-actuated extinguishing device normally held out of action by said weight, and hand-operating means projecting through the wall of the burner for displacing the weight and releasing the extinguishing device, substantially as herein shown and described.

4. In an automatic safety-extinguisher a

weight loosely mounted upon a seat with capability of oscillating, means for controlling the degree of oscillation of the weight, a spring-actuated extinguishing device having a projection thereon, a projection from the bottom of the weight, a pivotally-mounted detent-lever having a nose adapted to engage the projection of the extinguishing device and a second nose adapted to engage the projection of the weight and means for normally holding the detent-lever in its engaging position substantially as herein shown and described.

5. In an automatic safety-extinguisher a weight having a disk-like extended base, a drum or cage loosely inclosing said disk or base and having openings in the top and bottom, a sleeve sliding upon the wick-tube of the burner and carrying a spring-actuated extinguishing-flap, a spring acting to force said sleeve upward, an extension from said sleeve provided with a projection, a projection on the bottom of the weight, a pivotally-mounted detent-lever having a nose adapted to engage the projection of the sleeve and a nose adapted to engage the projection of the weight and means for normally retaining the detent-lever in its engaging position substantially as herein shown and described.

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Witnesses:

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